



C16-EE-406

5659

**BOARD DIPLOMA EXAMINATION, (C-16)
OCTOBER/NOVEMBER-2018
DEEE - FOURTH SEMESTER EXAMINATION**

GENERAL MECHANICAL ENGINEERING

Time : 3 Hours]

[Total Marks: 80

PART-A

3X10=30

- Instructions :**
1. Answer **All** questions.
 2. Each question carries **Three** marks.
 3. Answer should be brief and straight to the point and shall not exceed five simple sentences.

1. Define 'Hook's law and write its equation.
2. Write the relation between three elastic Moduli.
3. Find the power that can be transmitted by a shaft of 60mm diameter at a speed of 100 RPM, if the permissible shear stress is 50 N/mm^2
4. State the function of shaft.
5. Define the following terms (a) Swept volume (b) Compression ratio.
6. List any six parts of 2 stroke diesel engine.
7. State three differences between impulse and reaction steam turbines.
8. What is accessory in a boiler? List any two of them.
9. What is priming?
10. List the types of lubricant with examples.

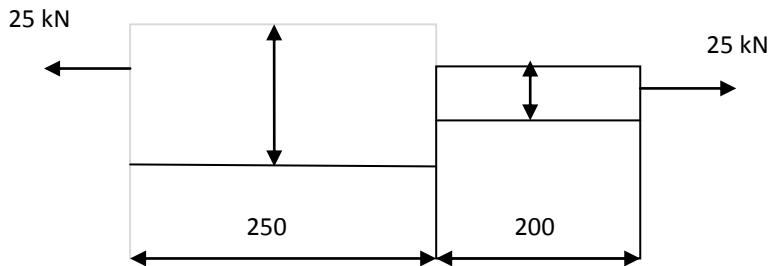
PART-B

10X5=50

Instructions :

1. Answer any **Five** questions.
2. Each question carries **ten** marks.
3. Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer

11. A mild steel bar has a diameter of 30mm and is 300mm long. A tensile load of 64kN applied longitudinally. Calculate the elongation of the bar, the change in diameter and the change in volume. Take $E = 2 \times 10^5 \text{ N/mm}^2$ and Poisson's ratio is 0.25
12. A steel bar is subjected to tensile force as shown in figure. Determine the total elongation of the bar and stress in each section. Take $E = 2 \times 10^5 \text{ N/mm}^2$. Diameter 1 = 25mm, Diameter 2 = 20mm



13. A hollow shaft is required to transmit 400kW at 240 RPM. The maximum torque is 20% greater than the mean. The permissible shear stress is 60 N/mm^2 . The twist in a length of 4m is not to exceed 15 degree. The ratio between inner and outer diameter is 2/3. Calculate inner and outer diameter of the shaft. Take $G = 80 \text{ kN/mm}^2$
14. Write short notes on (a) Fuel injection pump (b) Governing of IC engines.
15. Describe the working principle of 4-stroke petrol engine with neat sketch.
16. Explain the following
(a) Water level indicator (b) Economiser
17. Draw a neat sketch of Kaplan turbine and explain its working.
18. Explain the working principle of Parson's Reaction Steam Turbine with a neat diagram.
